

PARFANOVICH, B.V.

Determining the basic parameters of charge resistance furnaces.
TSvet. met. 34 no.8:33-38 Ag '61. (MIRA 14:9)

1. Vsesoyuznyy alyuminiyevo-magniyevyy institut.
(Electric furnaces)

PARFANOVICH, B.V.

GRANOVSKIY, B.L.; DIYEV, N.P.; ZUBAREV, V.I.; KARCHEVSKIY, V.A.; KLUSHIN, D.N.;
MAKOVSKIY, G.M.; MIRONOV, A.A.; OL'KHOV, N.P.; PARFANOVICH, B.V.;
USHAKOV, K.I.; SHAKHNAZAROV, A.K.

Electric smelting for matte in copper metallurgy; a reply to
L.M.Gazarian. TSvet.met. 28 no.1:33-41 Ja-F '55. (MIRA 10:10)
(Copper--Electrometallurgy) (Gazarian, L.M.)

18.3100A

S/136/61/000/001/002/010
E193/E583

AUTHORS: Parfanovich, B. V., Gnedin, I. I. and Yerofeyev, D. I.

TITLE: Methods of Suspension of Continuous Self-Baking
Electrodes in Cells for Electrolytic Extraction of
Aluminium

PERIODICAL: Tsvetnyye metally, 1961, No. 1, pp. 48-52

TEXT: For the last 25 years, the most widely used system of suspension of self-baking electrodes, has been the "Wisdom" system, based on the application of a band-brake mechanism. In addition to other short-comings, this system is manually operated and, as such, does not lend itself to automation. A system, developed recently both in the Soviet Union ("Gipronikel" and "Giprostal'" Institutes) and in Germany (Demag), and based on the application of pneumatically operated, split steel bushings with rubber-coated working surfaces, is free from these disadvantages. The principle of this system is illustrated in the figure reproduced below which shows:
1 - electrode; 2 - bellows-operated clamps of the current leads;
3 - split bushings with pressurized rubber tyres; 4 - air cylinder;
5 - pressure regulator; 6 - pressure gauge; 7 - 3-way valves;
8 - springs. (The insert in the right-hand corner of the illustration shows the detail of the bushing.)
Card 1/4

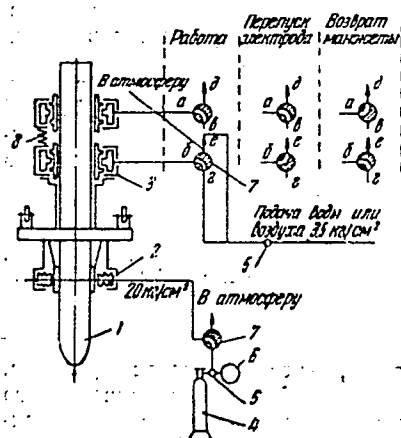
S/136/61/000/001/002/010

E193-E583

Methods of Suspension of Continuous Self-Baking Electrodes in Cells for Electrolytic Extraction of Aluminium

illustration shows the position of the 3-way valves (1) when the electrode is stationary, (2) when it is being lowered down, and (3) when the top split bushing is being returned to its original position).

Fig. 2



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E193/E583

Methods of Suspension of Continuous Self-Baking Electrodes in Cells for Electrolytic Extraction of Aluminium

During normal operation of the cell, the electrode is stationary, being held in position by the two split bushings, pressed firmly against the upper part of the electrode shell by the action of the pressurized rubber tyres. In order to lower the electrode into the bath, pressure in the bottom tyre is released and the electrode, gripped by the upper bushing only, slides down under its own weight until its movement is arrested by stops incorporated in the bottom bushing. The lower bushing is then made to grip the electrode by applying pressure to its tyre, pressure in the tyre of the upper bushing is released, and the upper bushing is returned by the action of the springs to its initial position, preparatory to the next lowering operation. An empirical formula for the force, required to grip the electrode of a given size, has been derived by the present authors, and a table has been compiled, giving the main characteristics (dimensions of the split bushings, pressure in the rubber tyres and bellows, etc.) of the mechanism discussed for electrodes ranging in size from 650 to 1400 mm

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E193/E583

Methods of Suspension of Continuous Self-Baking Electrodes in Cells
for Electrolytic Extraction of Aluminium
in diameter. There are 2 figures, 1 table and 3 references:
2 Soviet (1 a translation) and 1 non-Soviet.

ASSOCIATION: VAMI, Gipronikel'

Card 4/4

S. J. C. L.

Polymer from Hydrocarbons

Polymerization of isobutylene. II. Action of solid
iron phosphates on a carrier. R. R. GALT, H. N.
PANTANOYU, and R. N. ROZENGART (J. Ap. Chem.,
U.S.S.R., 1910, 10, 1251-8; Chem. Abs., 1917, 41,
6849). Cf. Summary, 1917, 25, 711, 382126, 12212

1947

157 AND 158 (COPY)

PROCESSED AND PREPARED INDEX

559 AND 578 (COPY)

10

Polymerization of isobutylene. II. Action of acid iron phosphates on a carrier. R. R. Galle, B. N. Frenkelovich, and R. N. Rosenberg. *J. Applied Chem. (U.S.S.R.)* 19, 1261-6 (1946) (in Russian); *cf. C.A.* 41, 6769d. — Three types of catalysts were prepared: (I) $\text{Fe}(\text{H}_2\text{PO}_4)_3$ (light pink rhombic microcrystals), by dissolving 4.5 g. $\text{Fe}(\text{OH})_3$ in 46% H_3PO_4 (d. 1.58) with heating and stirring, then introducing 14.5 g. (equal to the theoretical amt. of $\text{Fe}(\text{H}_2\text{PO}_4)_3$) dry activated C of 1.5-3.0 mm. grain size, heating at 70° 3.5 hrs., filtering, washing with ether, and drying over H_2SO_4 at 80°. This catalyst (in a 10-mm. layer) did have a polymerizing effect at 80-80° (yield of dimer about 10% higher than with H_3PO_4 with a fresh catalyst) but proved very unstable due to hydrolysis. Addition of new $\text{Fe}(\text{H}_2\text{PO}_4)_3$ on a lith-C (deposited in ether suspension and evaporated) to the exhausted catalyst raised its activity only temporarily. (II) A catalyst with excess H_3PO_4 , by introducing 300 g. activated C into 1 l. 16% FeCl_3 , heating under aspirator vacuum, cooling, treating with excess 25% NH_4OH , filtering, washing to remove all Cl , drying at 100°, and adding to one half the amt. of the ppt. 435 g. 46% H_3PO_4 , resulting in $\text{Fe}_2\text{O}_3/\text{P}_2\text{O}_5 = 0.374$, or approx. $\text{Fe}_2\text{O}_3 \cdot 37\text{P}_2\text{O}_5 \cdot 10\text{H}_2\text{O}$ ($\text{Fe}(\text{H}_2\text{PO}_4)_3 \cdot 3\text{H}_2\text{O}$) (III). A catalyst with a deficit of H_3PO_4 , obtained by adding to the other half of the $\text{Fe}(\text{OH})_3$ ppt. on C, 318 g. 46% H_3PO_4 , resulting in $\text{Fe}_2\text{O}_3/\text{P}_2\text{O}_5 = 0.380$ or approx. $\text{Fe}_2\text{O}_3 \cdot 37\text{P}_2\text{O}_5 \cdot 10\text{H}_2\text{O}$ [$\text{Fe}_2(\text{H}_2\text{PO}_4)_3 \cdot 2.5\text{H}_2\text{O}$]. Both II and III were heated at 70° 8 hrs., the excess soln. decanted, the catalysts centrifuged at 3000 r.p.m., washed with ether, and dried in vacuo at 80°. Due to suppressed hydrolysis, II proved to be considerably more stable than I; at 80-80° the yield of dimer was about 80% of the total polymerizable; that of the trimer 1/11 to half that given by H_3PO_4 , but rose to about the same amt. at 100-5°; reversed lowering of the temp. again shifts the product compn. in favor of the dimer. The high activity of the catalyst persisted 115 hrs. (at a rate of flow of about 10 l./hr.) and fell slowly during the following 60 hrs.: at that stage, the catalyst was found to have lost almost all its excess H_3PO_4 and became nearly identical with I. Humidification of the gas at 18° (0.0153 g. $\text{H}_2\text{O}/\text{l.}$) resulted in doubling the rate of polymerization, without change in the compn. of the product at 80-5° but with a sharp loss in the yield of dimer at 100-5°. Humidification at 80° (0.092 g. $\text{H}_2\text{O}/\text{l.}$) resulted, at 100-5°, in a drastic loss of activity (down to 10%), due evidently to extra. of the protecting excess H_3PO_4 . The activity of III was about of the same order as that of exhausted II, giving about 66% dimer. Calcs. of the relative time-space yields, taking pure H_3PO_4 (on C) = 100, gave for: I 31.4, II 63.6 and 74.0 at 80-5° and 100-5°, resp., III 3.9. The very high figure, 152.0, for II at 100-5° in the presence of 0.0153 g. $\text{H}_2\text{O}/\text{l.}$ is offset by the rapid destruction of the catalyst. N. Thon

559-578 METALLURGICAL LITERATURE CLASSIFICATION

157 AND 158 (COPY)

559 AND 578 (COPY)

157 AND 158 (COPY)

559 AND 578 (COPY)

PARFANOVICH, D M.

USSR/Nuclear Physics

C-5

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 11248

Author : Parfanovich, D.M., Pabin, N.V., Semchinova, A.M.

Inst : Not given

Title : Interaction of Nitrogen Nuclei With Photoemulsion Nuclei.

Orig Pub : Zh. eksperim. i teor. fiziki, 1956, 31, No 2, 188-193

Abstract : A study was made of the interaction between nitrogen nuclei, accelerated in a cyclotron to 115 Mev, and the nuclei of the Ilford E1 photoemulsion. The dependence of the range on the energy, obtained experimentally for nitrogen nuclei, was used in the processing of the results. 25 square cm of the emulsion were scanned and 198 interactions with escape of charged particles were observed, of which 70 cases were attributed to the interaction between the nitrogen and the "heavy nuclei"

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USSR/Nuclear Physics

C-5

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 11248

(Br, Ag), and 128 to interaction with "light" nuclei (C, O). It was established that on the average the number of α particles in the stars is twice as large than the number of protons, both for "light" as well as for "heavy" nuclei, this being in contradiction to the theory of the evaporation of particles from the compound nucleus. Cases were observed where fragments heavier than α particles were emitted (essentially upon interaction of M^{14} with "light" nuclei).

The angular distribution of the α particles in the center of mass system, summed over all stars, has a noticeable directivity forward, this also being in contradiction with the evaporation model of the reaction. The angular distribution of the protons is apparently isotropic. In the energy spectrum of the α particles, there is a strikingly large number of α particles with energies

Card 2/3

USSR/Nuclear Physics

C-5

Abs Jour : Ref Zhur - Fizika, No 5, 1957, 11248

below the Coulomb barrier for N. The results obtained cannot be explained either by the evaporation theory of the particles from the compound nucleus, or by the model that presupposes the disintegration of N in the Coulomb field of the target nucleus. It is proposed that the nitrogen nucleus may break up into individual particles when it penetrates in the nucleus target, while the α particles escape during the instant of collision, and the protons evaporate from the heated nucleus.

Card 3/3

FLEROV, G. N., PARFANOVICH, D. M. and SEMCHIKOVA, A. M.

(Acad. Sci. USSR)

"Interaction of Nitrogen and Oxygen Ions with Photoemulsion Nuclei,"

paper submitted at the All-Union Conf. on Nuclear Reactions in Medium and Low Energy Physics, Moscow, 19-27, Nov 57

Parfanovich, D. M.

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4720

INTERACTION OF NITROGEN NUCLEUS WITH NUCLEI
IN AN EMULSION. D. M. Parfanovich, N. Y. Rabin, and
A. M. S. Mchinnaya. SOVIET PHYS. JETP 4, 99-102(1957)
Feb.

The results of an experimental investigation of the inter-
action between nitrogen nuclei, accelerated to an energy of
100 Mev, and nuclei in an emulsion are presented. The
range-energy relation for nitrogen nuclei in the emulsion
is determined. The angular and energy distributions for
protons and α particles produced in the reactions are ex-
amined. The experimental results reveal a number of
interesting features in the emission of charged particles
which characterize the interaction of the nitrogen nuclei
with the nuclei of the emulsion. (auth)

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mpe

PARFANOVICH, D.M.

AUTHOR: PARFANOVICH, D.M., SEMCHINOVA, A.M., FLEROV, G.N. 56-2-5/47
TITLE: Determination of the Range-Energy Relation for Nitrogen and
Oxygen Ions in Photographic Emulsions. (Opredeleniye zavisimosti
probeg-energiya dlya ionov azota i kisloroda v fotoemulsii ,
Russian)
PERIODICAL: Zhurnal Eksperim.i Teoret.Fiziki, 1957, Vol 33, Nr 2, pp 343-345
(U.S.S.R.)
ABSTRACT: In a 150 cm cyclotron ions are first accelerated as doubly-charged
ions, and they leave the cyclotron as six-fold charged ions. For
monochromatization and after traversing an Al-filter of 5 μ thick-
ness, they pass through a magnetic analyzer in the focus of which
the photoplates are located. By means of this arrangement the range
energy curve for nitrogen and oxygen was recorded within the
energy range of from 3 to 120 MeV on Ilford E-1 plates. The accu-
racy with which each point on the curve was determined for ions
with an energy exceeding 30 MeV amounts to 5%, and for ions with
a lower energy it amounts to 10%. (With 1 Illustration).
ASSOCIATION: Academy of Sciences of the U.S.S.R. (Akademiya nauk SSSR)
PRESENTED BY:
SUBMITTED: 8.3.1957
AVAILABLE: Library of Congress
Card 1/1

PARFANOVICH, D M

AUTHORS: Flerov, G. N., Corresponding Member, SOV/20-120-1-18/63
Academy of Sciences, USSR, Polikanov, S. M., Kuramyan, A. S.,
Pasyuk, A. S., Parfanovich, D. M., Tarantin, N. I., Karnaukhov,
V. A., Druin, V. A., Volkov, V. V., Semchinova, A. M., Oganessian,
Yu. Ts., Khalizev, V. I., Khlebnikov, G. I.

TITLE: Experiments on the Production of the 102-nd Element (Opyty po
polucheniyu 102-go elementa)

PERIODICAL: Doklady Akademii nauk SSSR, 1958, Vol. 120, Nr 1,
pp. 73 - 75 (USSR)

ABSTRACT: The present paper describes the experiments carried out at the
Institute of Atomic Energy, AS USSR (Institut atomnoy energii
AN SSSR) for finding the new element with the atomic number 102;
these experiments were carried out in autumn 1957. First the
authors refer to the experiments carried out in the first half
of 1957 at the Swedish Nobel Institute (Ref 1). In the experi-
ments of the authors the plutonium isotopes Pu²³⁹ and Pu²⁴¹
were irradiated with accelerated oxygen ions. Five times charged
oxygen ions were by the 150-cm-cyclotron accelerated to 102 MeV.
In most cases the ions with the maximum energy were used. The

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Experiments on the Production of the 102-nd Element SOV/20-120-1-18/63

targets consisted of Pu^{239} or Pu^{241} layers which were 300 or 100 $\mu\text{g}/\text{cm}^2$ ~~thick~~. The method used made possible the registration of an α -decay taking place within some seconds. At the collision of an oxygen ion with the energy of about 100 MeV with a plutonium nucleus such a great momentum is transferred to the intermediate nucleus that its range is greater than the thickness of the plutonium layer and of the protective copper layer. The nuclei formed in the irradiation of plutonium with a O^{16} beam were freely emitted from the target and fell on a collector where they came to a standstill at a certain depth. This collector was periodically applied to a thick-layered photoplate which was at a distance of 2 m from the target and which served for the registration of the α -particles resulting from the radioactive decay of the formed isotopes. The performance of the experiments is described in short. The method used in the present paper is suited for the registration of short-living α -active products of reactions with very small yields (up to cross sections of from 10^{-32} to 10^{-33} cm^2). Based on the analysis of the possible causes for the background and based on some control experiments the authors arrived at the following conclusion: the α -particles with an energy of $> 8,5 \text{ MeV}$ observed in the irradiation of

Card 2/3

Experiments on the Production of the 102-nd Element SOV/26-120-1-18/63

plutonium with oxygen ions most probably are connected with the decay of the isotopes of the 102-th element. Further control experiments with an improved method are planned. The authors thank I.V.Kurchatov, Member, Academy of Sciences, USSR, for his constant interest in this work. They also thank the collaborators under the supervision of Pustovoyt for the perfect operation of the cyclotron. There are 2 figures and 2 references, 1 of which is Soviet.

SUBMITTED: February 28, 1958

1. Plutonium isotopes (Radioactive)--Preparation
2. Plutonium isotopes (Radioactive)--Test results
3. Oxygen ions--Applications

Card 3/3

PARFANOVICH, D. M.: Master Phys-Math Sci (diss) -- "A study of the reactions of fission of nuclei by heavy ions". Dubna, 1959. 6 pp (Inst of Atomic Energy of the Acad Sci USSR), 160 copies (KL, No 7, 1959, 121)

FLEROV, G.N.; POLIKANOV, S.M.; KARAMYAN, A.S. [deceased]; PASYUK, A.S.;
PARFANOVICH, D.M.; TARANTIN, N.I.; KARNAUKHOV, V.A.; DRUIN, V.A.;
VOLKOV, V.V.; SEMCHINOVA, A.M.; OGANESYAN, Yu.TS.; KHAIZEV, V.I.;
KHEBNIKOV, G.I.; MYASOYEDOV, B.F.; GAVRILOV, K.A.

Experiments to produce element No. 102. Zhur. eksp. i teor. fiz.
38 no.1:82-94 Jan '60. (MIRA 14:9)

1. Sotrudniki Ob"edinennogo instituta yadernykh issledovaniy (for
Polikanov, Oganessian, Gavrilo). 2. Sotrudnik Instituta geokhimii
i analiticheskoy khimii AN SSSR (for Myasoyedov).
(Transuranium elements)

BAT', G. A.; MUKHINA, G. V.; PARFANOVICH, D. M.

"Compensation of large changes in the reactivity by deformation of the core lattice."

report submitted for 3rd Intl Conf, Peaceful Uses of Atomic Energy, Geneva, 31 Aug-9 Sep 64.

PARFANOVICH, L.A.

Effect of intermittent light excitation on alkali halide

phosphors. L.A. Parfanovich, *Optika i Spektroskopiya* 2, No. 3, 392-5 (1967). The study of the increase in the intensity of secondary phosphorescence observed with KBr:Cu phosphors (cf. C.A. 49, 8667a) was extended to KCl:Ti phosphors (1). Following x-ray excitation of 1 g in the F region at room temp., the intensity of phosphorescence sharply increased, lasting for about 1000 sec. When it was intermittently illuminated with a const. intensity light from the F region, the phosphorescence intensity decreased during the 1st excitation, then increased following black-out and 2nd excitation. This process was reproducible. Measurements carried out in a similar process, except that during the black-out pause the sample was heated to 40° and cooled back to room temp. after the 2nd excitation, showed that during the optical excitation simultaneous destruction of F centers and the formation of phosphorescence centers takes place. This effect was especially pronounced in x-ray excited NaCl:Ni phosphors. Neither the nature of the capturing centers which were responsible for the luminescence nor the method of their destruction were responsible for the increase in the intensity of the secondary phosphorescence. This phenomenon was related to the initial effect of light from the F centers, which resulted in a redistribution of electrons from F levels to the upper levels. The intensity of recombination luminescence, I_r , was expressed by the equation $I_r = AgI/n$ (where, A is product of the effective cross section of electron which is ionized by the luminescence center and the

IA. PARFIA-TOUCH

ing electron, r is relative transition probability of the excited center into ground state, N is concn. of electrons in the conduction region, and n is concn. of ionized centers of luminescence). Thus, thermal treatment of the phosphor after an optical excitation should result in an increase in the values of either n or N or both.

And...

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PARFANOVICH, M.I.; SOKOLOV, N.N.; CHURILOVA, A.A.; YAGODINSKIY, V.N.; PCHELKINA, A.A.; KORENBERG, E.I.; LOKHOVA, S.V.

Reviews. Vop. virus. 10 no.2:241-245 Mr-Apr '65.

(MIRA 18:10)

1. Institut virusologii imeni D.I.Ivanovskogo AMN SSSR, Moskva (for Parfanovich, Sokolov).
2. Leningradskaya oblastnaya sanitarn-epidemiologicheskaya stantsiya (for Churilova, Yagodinskiy).
3. Institut epidemiologii i mikrobiologii imeni N.F.Gamalei AMN SSSR, Moskva (for Pchelkina, Korenberg).
4. Moskovskiy nauchno-issledovatel'skiy institut virusnykh preparatov (for Lokhova).

SOKOLOV, N. N.; PARFANOVICH, M. I.

"Distribution of nucleic acids and specific antigens in cells in cases of mixed virus infections by means of acridine orange staining and immunofluorescent technique."

report submitted for 2nd Intl Cong, Histochemistry & Cytochemistry, Frankfurt, 16-21 Aug 64.

Moscow.

D. I. Ivanovskiy Inst Virology, AMS USSR.

SOKOLOV, N. N.; PARFANOVICH, M. I.

"An electron-microscope study of street and fix rabies viruses in brain sections of experimental animals and in partially purified virus suspension."

report submitted to 3rd European Regional Conf, Electron Microscopy, Prague, 26 Aug-3 Sep 64.

SOKOLOV, N.N.; PARFANOVICH, M.I.

Character of the accumulation and localization of specific antigen and nucleic acids in the course of vaccinia virus infection of tissue culture as revealed by fluorescence microscopy. Acta virol (Praha) [Engl] 8 no.1:30-37 Ja'64.

1. Ivanovsky Institute of Virology, U.S.S.R. Academy of Medical Sciences, Moscow.

*

SHEN, R.M.; PARFANOVICH, M.I.; GALEGOV, G.A.

Intracellular localization of herpes virus in experimental encephalitis
in the rabbit. Vop.virus. 6 no.5:538-541 S-0 '60. (MIRA 14:7)
(HERPES) (ENCEPHALITIS)

SOKOLOV, N.N.; PARFANOVICH, M.I.; MEKLER, L.B.

On the nature of tick-borne encephalitis virus. II. A comparative study of nucleic acids and specific antigen in cells from brains of white mice infected with tick-borne encephalitis virus by fluorescence microscopy. *Acta virol.* 7 no.3:217-224 My '63.

1. Ivanovsky Institute of Virology, U.S.S.R. Academy of Medical Sciences, Moscow.

(ENCEPHALITIS)	(ENCEPHALITIS VIRUSES)	(ANTIGENS)
(DNA, VIRAL)	(RNA, VIRAL)	(NEURONS) (HIPPOCAMPUS)
(CEREBELLAR CORTEX)	(MICROSCOPY, FLUORESCENCE)	

SOKOLOV, N.N.; PARFANOVICH, M.I.; MEKLER, L.B.

On the nature of tick-borne encephalitis virus. I. A comparative study of nucleic acids and specific antigen in sheep embryo kidney cell cultures infected with tick-borne encephalitis virus by fluorescence microscopy. Acta virol. 7 no.3:209-216 My '63.

1. The Ivanovsky Institute of Virology, U.S.S.R. Academy of Medical Sciences, Moscow.

(VIRUS CULTIVATION) (ENCEPHALITIS VIRUSES) (TISSUE CULTURE)
(DNA, VIRAL) (RNA, VIRAL) (ANTIGENS) (MICROSCOPY, FLUORESCENCE)

SOKOLOV, N.N.; PARFANOVICH, M.I.

Accumulation of specific antigen and distribution of nucleic acids in sheep embryo kidney cells infected with street rabies virus as revealed by fluorescence microscopy. Acta virol. (Praha) [Eng.] 9 no.2:191 Mr'65.

1. Ivanovsky Institute of Virology, U.S.S.R., Academy of Medical Sciences, Moscow.

GALEGOV, G.A.; PARFANOVICH, M.I.

Studies on transamination reactions in the brain of rats infected
by the fixed rabies virus. Biul. eksp. biol. med. 47 no.2:60-62
F '59. (MIRA 12:4)

1. Iz laboratorii biokhimii virusov (zav. - prof. V.I. Tovarnitskiy)
i laboratorii patogeneza i patomorfologii virusnykh infektsiy (zav.
- prof. R.M. Shen) Instituta virusologii imeni D.I. Ivanovskogo (dir. -
prof. P.N. Kosyakov) AMN SSSR, Moskva. Predstavlena deystvitel'nym
chlenom AMN SSSR V.N. Chernigovskim.

(BRAIN, metab.

transamination in exper. rabies in rats (Rus))

(RABIES, exper.

eff. on brain transamination in rats (Rus))

PARFANOVITCH, D. H.

R. R. Halle, D. H. Parfanovitch, R. H. Rosenberg

"Polymerization of Isobutylene." Journal for Applied Chemistry 22, 1951-52,
December 1946. II. The Influence of Acidic Iron Phosphates on Carriers.

ABSTRACT AVAILABLE

D-50054

PARFANOVITCH, B. N.
PARFANOVITCH, B. N.

R. A. Halle, and B. N. Parfanovitch

"Polymerization of Isobutylene." Journal of Applied Chemistry 12, 116-117,
November 1946. I. Influence of Phosphoric Acid on Carriers.

ABSTRACT AVAILABLE

D-50054

PARFAN'YAK, P.

PARFAN'YAK, P.

Improve bank control over the use of wage funds. Den. 1 kred. 15
no.8:19-24 Ag '57. (MIRA 10:8)

(Banks and banking) (Wages)

PARFAN'YAK, P.

PARFAN'YAK, P.; SLAVNYI, I., redaktor; ROSHCHINA, L., redaktor; DENISOVA, O.,
~~tekhnicheskii~~ redaktor

[Problems of bank control of industry through the ruble] Voprosy
bankovskogo kontrolya rublem v promyshlennosti. Moskva, Gosfinizdat,
1954. 143 p.

(MLRA 9:1)

(Banks and banking) (Finance)

PARFAN'YAK, P. prof.

Turnover of assets as a general index of the efficiency of capital
investment: for the introduction of new machinery. Den. i kred. 19
no.3:14-24 Mr '61. (MIRA 14:3)

(Machinery in industry)
(Capital investments)

PARFAN'YAK, P.

Plans for organizational and technical measures, and bank control.

Den. i kred. 13 no.8:8-14 Ag'55.

(MIRA 8:11)

(Banks and banking) (Industrial management)

PARFAN'YAK, P.

MITEL'MAN, Ye.

"Problems of bank control through the ruble in industry." P. Parfan'iak.
Reviewed by E. Mitel'man. Den. i kred. 12 no. 1:57-62 JI'54.
(Parfan'iak, P.A.) (Banks and banking) (MLRA 8:2)

PAFFAN'YAK, P.

Voprosy bankovskogo kontrolya rublem
v promyshlennosti (Problems of bank control of industry
through the ruble). Moskva, Gosfinizdat, 1954. 144 p.

SO: Monthly List of Russian Accessions, Vol. 7, No. 5, August 1954

SHVARTS, Grigoriy Aronovich; PARFAN'YAK, P.A., prof., otv. red.;
NADEZHDA, A., red. izd-va; TELUGINA, T., tekhn. red.

[Non-cash payments and credit in the U.S.S.R.] Bezna-
lichnyi oborot i kredit v SSSR. Moskva, Gosfinizdat,
1963. 218 p. (MIRA 16:8)
(Clearing house) (Credit)

PARFAN'YAK, P. A.

Parfan'Yak, P. A. - "The working capital and the working resources of socialist industrial enterprises," Trudy Sarak. ekon. in-ta, Vol II, 1949, p. 95-136

SO: U-5240, 17, Dec (Istoria 'Zhurnal 'nykh Statey, No. 25, 1949).

KAZANTSEV, Aleksey Ivanovich, kand.ekonom.nauk; PARFAN'YAK, P.A.,
prof., otv.red.; LOGOVINSKAYA, R., red.izd-va; LEBEDEV, A.,
tekhn.red.

[Clearing in the national economy of the U.S.S.R.] Vzaimnye
raschety v narodnom khoziaistve SSSR. Moskva, Gosfinizdat,
1959. 166 p. (MIRA 12:8)
(Clearinghouse)

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blood implantations. Akt.vop.perel.krovi no.4:180-181 '55.
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1. 5-ye Medob"yedineniye g. Tagaroga.
(ASTHMA) (PEPTIC ULCER) (BLOOD AS FOOD OR MEDICINE)

MIROTOIU, St., ing.; CIOBOTARU, L., ing.; MORARU, Nicolae, ing.; CIMPAN, I.;
PARFENE, D., ing. sef

The movement of inventions and innovations in Rumania. Probleme
econ 16 no.12:152-153 D '63.

1. Director, Intreprinderea forestiera Radauti (for Mirotciu).
2. Sef serviciu, Intreprinderea forestiera Radauti (for Ciobotaru).
3. Director tehnic, Uzina Independenta-Sibiu (for Moraru).
4. Director, Intreprinderea metalurgica de industrie locala Radauti (for Cimpan).
5. Intreprinderea metalurgica de industrie locala Radauti (for Parfene).

MEYDMAN, M.; PARFENENKO, A.; KACHURA, K.

Simplify accounting for and reports on financing and issuing long-term credit. Den. 1 kred. 18 no.9:69-73 S '60. (MIRA 13:8)

1. Inspektor Khersonskoy kontory Gosbanka (for Meydman). 2. Starshiy inspektor Sumskoy kontory Gosbanka (for Parfenenko). 3. Starshiy inspektor gorupravleniya Cherkasskoy kontory Gosbanka (for Kachura).
(Banks and banking--Accounting)

REL: N
MILNER, E.B., kandidat tekhnicheskikh nauk; GAL'TSOV, A.D., redaktor;
BILINKIS, M.S., inzhener, retsenzent; VAKHIANOV, I.A., retsenzent;
SHUMILKIN, V.K., retsenzent; ~~PARFENENKO~~, K.V., redaktor; MATVEYEVA,
Ye.N., tekhnicheskii redaktor

[Setting technical norms in machine building] Tekhnicheskoe normiro-
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(Machinery industry—Production standards)

PARFENENKO, K. V.

SAKSAGANSKIY, Teodor Davidovich; YAMPOL'SKIY, S.M., kandidat ekonomicheskikh nauk, retsenzent; PARFENENKO, K.V., redaktor; PROKOP'YEVA, L.G., redaktor izdatel'stva; TIKHONOV, A.Ya., tekhnicheskiy redaktor; EL'KIN'YE, V.D., tekhnicheskiy redaktor

[Organization of production in machine manufacturing plants] Kak organizovano proizvodstvo na mashinostroitel'nom zavode. Izd.2-oe, dop. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1957. 226 p. (MLRA 10:9)

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BAZHAN, A.P., inzh.; PARFENENKO, L.S.; SHEVCHENKO, A.M., kand. med. nauk X

Dust control measures during the sinking of vertical shafts.
Bor'ba s sil. 6:92-96 '64 (MIRA 18:2)

1. Krivorozhskiy filial Vsesoyuznogo nauchno-issledovatel'skogo
instituta organizatsii i mekhanizatsii stal'nogo stroitel'stva
(for Bazhan, Parfenenko). 2. Krivorozhskiy nauchno-issledova-
tel'skiy institut gigieny truda i professional'nykh zaboleva-
niy (for Shevchenko).

VOYNALOVICH, V. N., inzh.; PARFENENKO, L. S., inzh.

Increasing labor productivity in boring and blasting operations. Met. i gornorud. prom. no.1:49-51 Ja-F '63.
(MIRA 16:4)

1. Filial Ukrainskogo nauchno-issledovatel'skogo instituta organizatsii i mekhanizatsii shakhtnogo stroitel'stva, Krivoy Rog.

(Boring) (Blasting)

PARFENENKO, L.S.; BAZHAN, A.P.

Dust in the air during the sinking of vertical shafts in the Krivoy Rog Basin. Bor'ba sil. 5:203-206 '62. (MIRA 16:5)

1. Krivorozhskiy filial Ukrainskogo nauchno-issledovatel'skogo instituta organizatsii i mekhanizatsii shakhtnogo stroitel'stva.
(Krivoy Rog Basin—Shaft sinking) (Mine dusts)

PARFENENKO, L.S., inzh.

Planning the rapid sinking of inclined 3000 m. shafts at the Kirov Mine. Shakht. stroi. 4 no. 5:11-15 My '60. (MIRA 14:4)

1. Krivorozhskiy filial Ukrainskogo nauchno-issledovatel'skogo instituta organizatsii i mekhanizatsii shakhtnogo stroitel'stva.
(Krivoy Rog Basin—Shaft sinking)

PARFENENKO, I.S., gornyy inzh.; VITKOVSKIY, Yu.I., gornyy inzh.;
YAROKHNO, M.S., gornyy inzh.

Electric blasting of boreholes in the making of horizontal
workings. Gor. zhur. no.9:71 S '64. (MER# 17-12)

1. Krivorozhskiy filial Vsesoyuznogo nauchno-issledovatel'skogo
instituta organizatsii i mekhanizatsii shakhtnogo stroitel'stva.

TORGOVITSKIY, A. Ya., inzh.; VARTENENKO, L.S., inzh.

Construction of a dredging well in Czechoslovakia. *Shakht. stroi.*
8 no.5:28-29 1976a (MIRA 17:7)

PARFEMENK, L.S.; VOTIALOVICH, V.N.

Using straight cuts for bleeding in the Helvetic Pig Breed. Part 1.
prom. no. 0157-53. M-L 1-3. [MIRA 14]

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Investigating air dustiness during the sinking of vertical shafts.
Bezop. truda v prom. 7 no.12:26-27 D '63.

(MIRA 18:7)

PARFENENKO, L.S., inzh.; VITKOVSKIY, Yu.I., inzh.

Borehole diameters and the blasting of borehole charges during
the mining of horizontal workings. Shakht. stroi. 8 no.4:18
Ap'64 (MIRA 17:1)

1. Krivorozhskiy filial Vsesoyuznogo nauchno-issledovatel'-
skogo instituta organizatsii i mekhanizatsii shakhtnogo stroi-
tel'stva.

PARFENENKO, Vasilii Dorofeyevich

[What one should know about auditing reports and balances;
textbook for auditors of government revenue] Chto nado znat' o
schetnoi proverke otcheta i balansa; posobie dlia inspektorov
gosudarstvennykh dokhodov. Moskva, Gosfinizdat, 1961. 85 p.
(MIRA 15:6)

(Auditing)

BELIKOVSKIY, Ye.S., gornyy inzh.; DOLGIY, N.N., gornyy inzh.; KOSTIN, G.P.,
gornyy inzh.; PARFENENKO, Ye.P., gornyy inzh.; KHOR'KOV, gornyy inzh.

Multichannel industrial television on a cage hoist. Gor. zhur. no.3:
61-63 Mr '62. (MIRA 15:7)

1. Nauchno-issledovatel'skiy gornorudnyy institut, Krivoy Rog.
(Industrial television) (Mine hoisting)

USSR/Cultivated Plants - Potatoes. Vegetables. Melons.

M-3

Abs Jour : Ref Zhur - Biol., No 7, 1958, 29795

Author : Parfenenko, Z.P.

Inst :

Title : The Use of Bacterial Fertilizers in Vegetable Raising.

Orig Pub : Udobreniye i urozhay, 1957, No 2, 55

Abstract : Tests on the use of bacterial fertilizers in hot-houses and seed-beds for the sprouts of regular and red cabbages, tomatoes and cucumbers were made in 1956 in a number of kolkhozes of the Mytishchinskiy Machine and Tractor Station in Moscow Oblast'. The application of nitrifying and phosphorus bacteria acted favorably on the shoot growth and development and increased the yield.

Card 1/1

LEVINA, G.S.; KATSNEL'SON, M.M., red.; PARFENENKOVA, G.P., ved.
red.; ROZOVA, S.T., tekhn. red.

[Modern unit of the Grozny Cracking Plant] Peredovaya
ustanovka Groznenskogo kreking-zavoda. Moskva, TsNIIITEINeftegaz,
1963. 19 p. (MIRA 16:11)
(Grozny--Cracking process)

ZAKHAROVA, N.V.; LIAKUMOVICH, A.G.; PARFENENKOVA, L.R.; VASIL'YEVA, A.G.

Basic regularities of the reaction of isoamilenes with sulfuric acid. Khim. i tekhn. topl. i masel 9 no.9:18-22 S '64.
(MIRA 17:10,

1. Sterlitamakskiy zavod SK.

PARFENIK, A.N., kand. biolog. nauk

Effect of environment on the variability of morphological
characters of the brown trout (*salmo trutta m. fario* L.)
in the Kabardino-Balkar A.S.S.R. Uch. zap. Kab.-Balk. gos. un.
no.12:211-219 '62. (MIRA 16:6)

(Kabardino-Balkar A.S.S.R.-Brown trout)

PARFENIK, A. N.

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Academy of Pedagogic Sciences RSFSR, Sci Res Inst of Methods of Teaching,
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PARFENIK, A.N.

Observing spawning and development of trout in the rivers of Kabardia.
Uch.zap.Kab.gos.ped.inst.no.10:71-87 '56. (MLRA 10:3)
(Kabardia--Trout)

PARFENIK, A.N.

Growth and feeding habits of young trout (*Salmo trutta* m.
Fario L.) in the rivers of the Kabardino-Balkar A.S.S.R
Uch.zap. Kab. - Balk. gos. un. no. 14:131-139'62.

(MIRA 16:6)

(KABARDINO-BALKAR A.S.S.R.—TROUT)
(KABARDINO-BALKAR A.S.S.R.—FISHES—FOOD)

ИЗДАНИЕ, А. Н.

Science

Animal kingdom of Kabardya. Nal'chik . Kabardinskoe gosudarstvennoe izd-vo, 1951.

Monthly List of Russian Accessions, Library of Congress, November 1952. Unclassified.

PARFENIK, A.N., dotsent, kand. biolog. nauk

Systematic survey and biological characteristics of fishes of the
carp family (Cyprinidae) in the Kabardino-Balkar A.S.S.R. Uch.
zap. Kab.-Balk. gos. un. no.10:147-160 '61. (MIRA 17:6)

PAVISIC, Zvonimir; FERIG-SIEWERTH, Feodora; ~~PARFENJUK~~, Stjepan

Occurrence of scrofulous inflammation of the eye according to personal experiences. Radovi Med. fak. Vol.2:149-169 1953.

1. Oena klinika Medicinskog fakulteta u Zagrebu (predstojnik prof. dr. Zvonimir Pavisic).(Priljeno 24.V.1953)

(EYE, dis.

*scrofulosis)

(SCROFULA

*eye)

PARFENOV, fnu

USSR/Petroleum-Well Drilling
Drilling

Aug 47

"Utilization of the Complex Drilling Equipment Produced by the Starogrozneft' Trust" 1/5 ;

"Neft Khor" No 8

Complex drilling equipment, modernized by Engineers Iavrinenko, Shishkin, Alifanov and Parfenov, is being used at the Starogrozneft' Trust. Equipment is simple and reliable and meets all demands required by technologists. Considerable economy in electric power is obtained because of technical improvements, new hauling operations, etc.

PA 49/49T100

KONOVALOV, I., doktor tekhn.nauk; PARFENOV, A.; BALANIN, V., kand.tekhn.-
nauk; SHCHERBAKOVA, R., kand.tekhn.nauk; BAKHTIN, A.; BALIN, N.

Measures for preventing ice jams on the lesser and greater Northern
Dvina. Rech. transp. 21 no.2:44-46 F '62. (MIRA 15:3)

1. Predsedatel' Kotlasskogo ispolnitel'nogo komiteta deputatov
trudyashchikhsya (for Parfenov). 2. Nachal'nik Kotlasskogo
tekhnicheskogo uchastka Severnogo basseynovogo upravleniya puti
(for Bakhtin). 3. Glavnyy inspektor Kotlasskogo tekhnicheskogo
uchastka (for Balin).

(Northern Dvina River--Ice on rivers, lakes, etc.)

PARFENOV, A.

Combining professions in a ship assembling crew. Blok. agit. vod. transp.
no.7:23-27 Ap '57. (MLRA 10:4)

1. Brigadir korpusnogo tsekha Kanonerskogo sudoremontnogo zavoda.
(Ship--Maintenance and repair)

PARFENOV, A.; SHISHKIN, O.

Seminar on automatic control of oil production. Izv. vyz. ucheb.
zav.; neft' i gaz 3 no.4:112 '60. (MIRA 15:6)
(Oil fields—Production methods)
(Automatic control)

PARFENOV, A.

Organizatsiia eksploatatsii raionnogo radiouzla (Solikamskii radiouzel). [Organization of exploitation of the Solikamsk regional radio center]. (Vestnik sviazi. Pochta, 1947, no. 1, p. 16).

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PARFENOV, A., inzh. (Rostov-na-Donu); MIGUNOVA, A., inzh. (Rostov-na-Donu)

Effectiveness of irrigation in Rostov Province. Gidr. i mel.
17 no.9:1-9 S '65. (MIRA 18:10)

PARFENOV, Aleksey Grigor'yevich; STARTSEV, Andrey Maksimovich; TRESKINA,
T.N., red.; BOL'SHAKOVA, L.A., tekhn.red.

Kotlas. Arkhangel'sk, Arkhangel'skoe knizhnoe izd-vo, 1959.
95 p. (MIRA 12:10)
(Kotlas--Economic conditions)

ZAMANSKIY, Mikhail Abramovich, dotsent; KULIZADE, Kezim Novruzovich, dotsent; MOVSESOV, Nerses Savadovich, inzh.; TARASOV, Dmitriy Aleksandrovich, dotsent; SHISHKIN, Oleg Petrovich, kand.tekhn. nauk; PARFENOV, A.I., dotsent, retsenzent; SVYATITSKAYA, K.P., vedushchiy red.; SHAKHMAYEVA, Ye.A., vedushchiy red.; MUKHINA, E.A., tekhn.red.

[Electric power supply and electric equipment of oil fields]
Elektrosnabzhenie i elektrooborudovanie neftiannykh promyslov.
Moskva, Gos.nauchno-tekhn.izd-vo nef. i gorno-toplivnoi lit-ry,
1959. 476 p. (MIRA 13:2)

1. Zaveduyushchiy kafedroy elektrosnabzheniya i elektrooborudovaniya Groznenskogo neftyanogo instituta (for Parfenov).
(Electric lines) (Oil fields--Equipment and supplies)

PARFENOV, A.I.; IVANOVSKAYA, I.S.

Electrode properties of glasses of the $\text{Li}_2\text{O} - \text{Cs}_2\text{O} - \text{SiO}_2$

system. Vest. LGU 14 no.16:94-98 '59. (MIRA 12:'0)
(Electrodes, Glass)

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SOV/54-59-1-13/25

AUTHOR: Parfenov, A. I.

TITLE: Electrode Properties of Glasses of the System $\text{Li}_2\text{O} - \text{SiO}_2$
(Elektrodneye svoystva stekol sistemy $\text{Li}_2\text{O} - \text{SiO}_2$)

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii,
1959, Nr 1, pp 98-102 (USSR)

ABSTRACT: In the present paper the author investigated the electrode properties of lithium glasses of the system $\text{Li}_2\text{O} - \text{SiO}_2$ at 25 and 95°C in solutions of lithium, sodium, and potassium salts. Investigations were carried out on a galvanic cell with a glass- and a calomel electrode. Table 2 shows the experimental data of electrode properties found in the glasses investigated with different pH-values in the various 3n concentrated basic solutions (for lithium- and potassium salt solutions from pH = 1 to pH = 13-14 and for the sodium salt solution from pH = 0 to pH = 13-14) at 25°C. Table 3 contains the values for sodium salt solutions and table 4 the values for lithium salt solutions for different pH-values at 95°C. The following conclusions were drawn from the experimental data obtained: The limits of the hydrogen

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Electrode Properties of Glasses of the System $\text{Li}_2\text{O} - \text{SiO}_2$ SOV/54-59-1-13/25

function (the latter is determined by the dependence of the electromotive force of cell I on the pH-value of the solution), are dependent on the concentration and the nature of the basic ion being in solution, and on temperature. The electrode properties of glass do not only depend on the composition of the glass but also on the composition of the solution, and above all on the nature and the concentration of the basic ion being in solution. It was found that the greater the radius of this ion is, the smaller is its influence upon the electrode property of glass.

$\text{Li}^+ > \text{Na}^+ > \text{K}^+$ In the lithium-silicon glass, on the other hand, sodium exerts the greatest influence upon the electrode properties: $\text{Na}^+ > \text{Li}^+ > \text{K}^+$ The investigation of the chemical stability of the lithium glasses in weakly acid and alkaline solutions, as well as in water, was carried out in the Institut khimii silikatov AN SSSR (Institute for Silicate Chemistry, AS USSR) under the supervision of S. K. Dubrovo, and led to the result that lithium glass is leached out in these solutions, i.e. a silicic acid film forms on the glass surface. The author thanks Professor B. P. Nikol'skiy and Docent M. M. Schul'ts for valuable advice. There are 1 figure, 4 tables, and 8 references, 5 of which are

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Electrode Properties of Glasses of the System $\text{Li}_2\text{O} - \text{SiO}_2$ SOV/54-59-1-13/25
Soviet.

SUBMITTED: February 4, 1958

Card 3/3

SHUL'TS, M.M.; PARFENOV, A.I.; CHEN DE-YUY [Ch'ên Tieh-yü]

Electrode properties of glasses of the system of oxides $\text{Li}_2\text{O} - \text{Cs}_2\text{O} - \text{La}_2\text{O}_3 - \text{SiO}_2$. Vest. LGU 18 no.4:155-160 '63. (MIRA 16:3)
(Electrodes, Glass) (Oxides)

SHUL'TS, M.M.; PESHEKHONOVA, N.V.; PARFENOV, A.I.; IVANOVA, Ye.A.; PETROVA, V.N.

Effect of alkaline earth oxides on the electrode properties and
chemical stability of lithium silicate glasses. Vest. LGU 18
no.4:104-114 '63. (MIRA 16:3)

(Electrodes, Glass) (Alkaline earth oxides)
(Lithium silicates)

SHUL'TS, M.M.; PARFENOV, A.I.; PANFILOVA, N.P.

Effect of zirconium dioxide on the electrode properties and chemical
stability of alkali metal silicates. Vest. LGU 18 no.4:143-148
'63. (MIRA 16:3)
(Electrodes, Glass) (Zirconium oxides) (Alkali metal silicates)

SHUL'TS, M.M.; PARFENOV, A.I.; PESHEKHONOVA, N.V.; BELYUSTIN, A.A.

Methods of investigation of the electrode properties and chemical
stability of glasses. Vest. ¹⁴GU 18 no.4:98-104 '63. (MIRA 16:3)
(Electrodes, Glass)

PARFENOV, A.I.; SHUL'TS, M.M.; NEKRASOVA, T.N.; POLOZOVA, I.P.

Electrode properties and chemical stability of lithium silicate
glasses containing rare earth oxides and yttrium oxide. Vest. LGU
18 no.4:126-134 '63. (MIRA 16:3)
(Electrodes, Glass) (Lithium silicates) (Rare earths)

PARFENOV, A.I.; SHUL'TS, M.M.; KOCHERGINA, N.N.; IVANOV, V.P.; TEVNINA,
S.B.; KALMYKOVA, L.P.; AGEYEVA, Ye.D.

Electrode properties and chemical stability of a number of
multicomponent lithium silicate glasses. Vest. LGU 18 no.4:
163-166 '63. (MIRA 16:3)
(Electrodes, Glass) (Lithium silicates) (Oxides)

5(4)

SOV/54-59-2-19/24

AUTHORS: Parfenov, A. I., Klimov, A. F., Mazurin, O. V.

TITLE: Electric Conductivity of the Glasses of the System
 $\text{Li}_2\text{O}-\text{Cs}_2\text{O}-\text{SiO}_2$ (Elektroprovodnost' stekla sistemy $\text{Li}_2\text{O}-\text{Cs}_2\text{O}-\text{SiO}_2$)

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii,
1959, Nr 2, pp 129-135 (USSR)

ABSTRACT: The results of the investigations of the conductivity and density of glasses of the system mentioned in the title are indicated in this article. The mentioned system is used as a basis for the working out of formulas for electrode glasses. These glasses have at present a resistance of 500 MΩ. The working method with them is much simplified if these glasses have a lower resistance. Under this point of view, the investigations described in this article were carried out. The designations of the glasses produced and investigated for the experiments, and their composition, are compiled in table 1. An analysis carried out on the glasses showed a deviation of some percent in the composition as compared with the quantities of single components used for the preparation. The density was determined by hydrostatic weighing of the samples in water and

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Electric Conductivity of the Glasses of the System
 $\text{Li}_2\text{O}-\text{Cs}_2\text{O}-\text{SiO}_2$

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benzene at room temperature (error $\pm 0.1 - 0.2 \%$). The conductivity was determined on plane-parallel samples by graphite electrodes, the resistance of the glasses up to $10^6 \Omega$ by a bridge circuit, higher resistances by a megohmmeter of the MOM-ZM type (error 20 - 30 %). The values of the mentioned determination quantities are compiled in table 2. The table also contains the activation energy E for the movement of ions in kcal/Mol and $\lg A$ computed by the formula for electric conductivity $\kappa = Ae^{B/kT}$. From the density of the glasses, their molecular volume was computed, and - as the Cs-glasses have the highest density - the dependence of the molar volume on the concentration of Cs_2O was determined at a constant content of Li_2O (Fig 1, and content of $\text{Cs}_2\text{O}+\text{Li}_2\text{O} = \text{const.} = 27 \text{ mol\%}$ Fig 2). For investigating the conductivity of glasses of different composition, the neutralization effect was investigated which occurs by replacing one basic oxide by another (Fig 3). This points to a direct dependence between the differences of radii of the basic ions entering into the system, and the character of the neutralization effect.

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Electric Conductivity of the Glasses of the System
 $\text{Li}_2\text{O}-\text{Cs}_2\text{O}-\text{SiO}_2$

SOV/54-59-2-19/24

In the investigation of the activation energy at the transition from sodium-potassium-silicate glasses to the system considered, no influence of the ion radius on its value could be observed (Fig 6). From all these investigations, the following conclusions are made: The electric conductivity of lithium glasses decreases considerably with an increase in the content of Cs_2O . For electrodes, which are only used at low temperatures, glasses with a low content of Cs_2O (up to 6 Mol%) should be preferred. With an increase in the content of Cs_2O , the toughness and also the melting temperature for glasses rise so that for electrodes used at higher temperatures an increase in the content of Cs_2O up to 9 Mol% is permissible. Glasses with a higher content of Cs_2O are unsuitable for use as electrodes due to their high resistance. There are 6 figures, 3 tables, and 4 references, 3 of which are Soviet.

SUBMITTED:
Card 3/3

October 28, 1958

SOV/20-127-3-34/71

AUTHORS: Nikol'skiy, B. P., Corresponding Member, AS USSR,
Parfenov, A. I., Shul'ts, E. M.

TITLE: Electrode Properties, Electrical Conductivity, and Chemical
Stability of the Glasses of the System $\text{Li}_2\text{O}-\text{La}_2\text{O}_3-\text{SiO}_2$

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 3, pp 599-601
(USSR)

ABSTRACT: In the present paper the results obtained by investigations
of the above-mentioned properties of the glasses $\text{Li}_2\text{O}-\text{SiO}_2$
and $\text{Li}_2\text{O}-\text{La}_2\text{O}_3-\text{SiO}_2$ (Refs 1-4) are confirmed. First, the com-
ponent properties of the simple system were determined for
the purpose of finding out what part each of them plays in
the glass. In the course of the investigations of the above-
mentioned system, Li_2O was varied within the limits of
25-33 mol% and La_2O_3 of 0-9 mol%. The electrode properties
were investigated at 25 and 95° in solutions with constant
 Li^+ , Na^+ or K^+ -ion concentration and a variation of the pH-
value of from 0-14. The investigation method has already

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Electrode Properties, Electrical Conductivity, and Chemical Stability of
the Glasses of the System $\text{Li}_2\text{O}-\text{La}_2\text{O}_3-\text{SiO}_2$

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been described in earlier papers (Refs 1, 7). Electrical conductivity was described in the T-interval of from 140-300° according to the method described in reference 8. For the calculation of the molar electrical conductivity λ , density was determined by weighing in water and benzene. The results obtained by measuring electrical conductivity, chemical stability, and density are given in table 1. The measurements showed the following: With the introduction of La_2O_3 and the increase of its content, the resistance of the glasses rises somewhat. On the other hand, the leaching out of the Li of the glasses, which is due to the action of water, is reduced by the introduction of lanthanum oxide. Thus, lanthanum increases the chemical stability of the glasses. The results obtained by investigating the electrode properties at 25° in the given salt solutions and the ion-exchange constant between water and glass are given by table 2. It was found that a variation of the LiO_2 -content within the given range influences the limits of the hydrogen function only little (± 5 mv). Electrical conductivity varied differently in the

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Electrode Properties, Electrical Conductivity, and Chemical Stability of
the Glasses of the System $\text{Li}_2\text{O}-\text{La}_2\text{O}_3-\text{SiO}_2$

various salt solutions with increasing lanthanum content. In the Li-salt solutions, the upper limit of the hydrogen function was shifted towards lower values. With growing La-content also the numerical value of the constant K grows. Li is kept back in the glass. In the Na- and K-salt solutions the limit of the hydrogen function is shifted into the more basic range. Penetration of Na- or K-ions into the glass is not possible owing to the filling effect of lanthanum oxide. For the glasses with La-content, the influence of the alkali ions upon the hydrogen function is given in the following order of magnitude: $\text{Li}^+ > \text{Na}^+ > \text{K}$. At 95° a quite similar dependence of the electrode properties on the composition of the glass and the solutions could be observed, only it is not so sharp. By the introduction of lanthanum into the glasses the limits of the hydrogen function in an acid medium are extended, the electrode properties are stabilized, and also the chemical stability of the glasses is increased. For measurements of the pH-value the glass composed of $\text{LiO} - 24-28\%$, $\text{LaO} - 4-7\%$, $\text{SiO}_2 - 65-70\%$ (molar) is recommended besides the electrode glass KST (TsLA energochermet) (Ref. 12). For the extension of the

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Electrode Properties, Electrical Conductivity, and Chemical Stability of
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limits of the hydrogen function in the basic medium, other
components must yet be introduced into the glass. There are
2 tables and 12 references, 7 of which are Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova
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SUBMITTED: May 13, 1959

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PARFENOV, A.I.

Electrode properties of glasses of the system $\text{Li}_2\text{O} - \text{SiO}_2$. Vest. LGU
14 no.4:98-102 '59. (MIRA 12:5)
(Electrodes, Glass)

5(2), 5(4)

SOV/54-59-3-15/21

AUTHORS: Parfenov, A. I., Ivanovskaya, I. S.

TITLE: The Electrode Properties of the Glasses of the System
 $\text{Li}_2\text{O}-\text{Cs}_2\text{O}-\text{SiO}_2$

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii,
1959, Nr 3, pp 94 - 98 (USSR)

ABSTRACT: Glasses with a Cs-content of $\leq 9\%$ by mole were used for the investigation of the electrode properties of glasses of the system $\text{Li}_2\text{O}-\text{Cs}_2\text{O}-\text{SiO}_2$; a higher Cs-content increases resistance considerably, and the chemical stability of such a compound is only small. Table 1 gives the composition and resistance ($\lg R$) at 20 and 150°. The electrode properties of the glasses were investigated at room temperature and at 95° in lithium- and sodium salt solutions at a pH-value of the solutions ranging from 0 to 14. The methods employed in the production of glass electrodes had already been described (Ref 1). The expansion coefficient of the glasses investigated was from $90 \cdot 10^{-7}$ to $115 \cdot 10^{-7}$ cm/per degree. The electrodynamic force of the glass-calomel galvanic elements E_1 was measured according to the compensation method. A tube electrometer served as zero instrument. The accuracy of

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The Electrode Properties of the Glasses of the System
 $\text{Li}_2\text{O}-\text{Cs}_2\text{O}-\text{SiO}_2$

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measurements at room temperature was within the error limits of ± 0.0002 v, and at 95° it was 0.001 v. E_1 was investigated in dependence on the composition and the pH-value of the solution ($E_1=f(\text{pH})$, calibration curve of the glass electrode). Further, the limits of the hydrogen function and deviations from it, expressed in ΔE_1 mv, were determined in acid and basic solutions. The limit values were assumed to be those in which $E_1=f(\text{pH})$ is a linear function, and where ΔE_1 does not exceed 10 mv, and the pH-difference is not more than 0.2 at room temperature. Table 2 shows the behavior characteristic of some electrode glasses of the LS-24-6-type ($\text{Li}_2\text{O}-\text{SiO}_2$) at 95° in acid and basic solutions, tables 3, 4 that the glasses of the system $\text{Li}_2\text{O}-\text{Cs}_2\text{O}-\text{SiO}_2$ at room temperature and at 95° . Figures 1 and 2 show the deviations from the hydrogen function observed in glasses with constant Si-content and varying Cs-content in acid and basic solvents. Cs-containing lithium glasses proved to extend considerably

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The Electrode Properties of the Glasses of the System
 $\text{Li}_2\text{O}-\text{Cs}_2\text{O}-\text{SiO}_2$

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the limit of the hydrogen function in the range of the high pH-values. Increased structure density is given as a reason for this phenomenon. Cs exerts also a negative effect upon the properties of the glasses; it increases the deviation from the hydrogen in acid medium. Increased resistance and lower chemical stability are mentioned as an explanation. There are 2 figures, 4 tables, and 3 references, 2 of which are Soviet.

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S/054/63/004/001/011/022
B101/3215

AUTHORS: Shul'ts, M. M., Parfenov, A. I., Peshekhonova, N. V.,
Belyustin, A. A.

TITLE: Method for studying the electrode properties and chemical
stability of glasses

PERIODICAL: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii,
no. 1, 1963, 98-104

TEXT: The regularities governing the relation between the electrode
properties of glasses and their chemical composition were studied in
binary alkali silicate glasses such as $\text{Li}_2\text{O} - \text{SiO}_2$ and $\text{Na}_2\text{O} - \text{SiO}_2$, as
well as in three-component glasses which, besides alkali oxide and SiO_2 ,
contained also an element belonging to the groups II, III, IV, or V of
the periodic system, as well as in multicomponent glasses such as
 $\text{Li}_2\text{O} - \text{CaO} - \text{La}_2\text{O}_3 - \text{SiO}_2$; $\text{Li}_2\text{O} - \text{BaO} - \text{La}_2\text{O}_3 - \text{SiO}_2$; $\text{Na}_2\text{O} - \text{BaO} -$
 $\text{Al}_2\text{O}_3 - \text{SiO}_2$ and others. The production of electrodes in the form of
blown-up glass balls of 8-10mm diameter, wall thickness 0.2-0.3mm is described.
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Method for studying the electrode ...

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B101/B215

The curves E versus pH were plotted and the point b of the beginning H⁺ function, point c of the end of the H⁺ function, and point d of the beginning metal function were determined in order to characterize the electrode properties. The equation $E = E^0 + \frac{1}{n} \log (a_{H^+} + K a_{M^+})$, where $\frac{1}{n} = 2.3RT/F$, K = equilibrium constant of the ion exchange between glass and solution is of satisfactory validity for a sharp transition from the H⁺ function to the metal function. For three-component glasses,

$\lambda = K/K'$ was obtained where K^X is the exchange constant of the glass containing a second oxide and K' is the exchange constant of the binary glass. The chemical stability was determined by treating the powdered glass (particle size = 80 - 100μ) for 1 hr with water or 0.1 N HCl at 100°C and by determining colorimetrically the components in solution. The chemical stability was characterized by the ratios

$[R_2O]_{sol}/[R_2O]_{glass}$ and $[SiO_2]_{sol}/[SiO_2]_{glass}$. In some cases the stability of the ground glass faces was tested by measuring the loss of weight in g/cm²·hr. These methods have been applied in the papers on Card 2/3

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glass electrodes appearing in the same number of this periodical.

SUBMITTED: October 1962

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